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Copeland Creek Enhancement and Restoration Project: Detention and Recharge Basins
Sonoma County Water Agency

The Sonoma County Water Agency in partnership with the Sonoma County Agricultural Preservation and Open Space District, Sonoma County Regional Parks, the City of Rohnert Park, Sonoma State University, the Conservation Corps North Bay and the University District, LLC proposes to implement a regionally integrated project in the Copeland Creek Watershed between Highway 101 at Rohnert Park east to Crane Creek Regional Park. This public-private partnership intends to accomplish the following:

- Enhancement and restoration of riparian habitat along up to 16,000 linear feet of Copeland Creek
- Storm water detention of up to 200 acre-feet in two to three off-stream basins located in the alluvial fan east of Petaluma Hill Road with 150 acre-feet or more annual groundwater recharge potential
- Increase of 75 to 90 acres of permanent preserved open space, including the upstream portion of Hinebaugh Creek and Copeland Creek
- Construction of more than 6,000 linear feet of public trails from Sonoma State University east to Crane Creek Regional Park, and 6,000 linear feet of public bike paths from Sonoma State University west to Commerce Boulevard near Highway 101 to enhance recreational opportunities and provide alternate commute options for pedestrians and cyclists.

The Project will:

- Assist in juvenile steelhead migration by providing off-channel refuge during high-flow events in the mid-reach of Copeland Creek. The project also protects water quality for salmonids by detaining fine sediment from roads, erosion, and other upland sources that otherwise would be deposited onto the streambed.
- Provide regional flood protection, creek habitat enhancement, and preservation of permanent open space.
- Engage the Sonoma County Water Agency, Sonoma County Agricultural Preservation and Open Space District, Sonoma County Regional Parks, the City of Rohnert Park, Sonoma State University, the Conservation Corps North Bay and the University District, LLC in an ongoing, inclusive framework for efficient intra-regional cooperation, planning and project implementation.

When completed, the project will improve flood protection, reduce sediment deposition downstream, recharge groundwater, improve salmonid habitat, provide salmonid refugia off-stream, conserve energy resulting from reduced pumping and importation of potable surface water, and create a site for public access and education about the hydrology, the water cycle, fish habitat, and geomorphic processes in the upper watershed.

The Project aligns with the following state preferences:

- Include regional projects or programs (CWC §10544)
- Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub-region specifically identified by DWR.
- Effectively integrate water management with land use planning
- For eligible SWFM funding, projects which: a) are not receiving State funding for flood control or flood prevention projects pursuant to PRC §5096.824 or §75034 or b) provide

multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

The following project elements and benefits are applicable to the Copeland Creek Project:

- Water supply reliability, water conservation and water use efficiency
- Storm water capture, storage, clean-up, treatment, monitoring and management
- Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Groundwater recharge and management projects
- Water banking, exchange, reclamation and improvement of water quality
- Planning and implementation of multipurpose flood management programs
- Watershed protection and management
- Ecosystem and fisheries restoration and protection
- Stormwater runoff management to reduce flood damage
- Conserve and enhance native salmonid populations by protecting and restoring required habitats, water quality and watershed processes
- Ensure adequate water supply while minimizing environmental impacts
- Provide an ongoing, inclusive framework for efficient intra-regional cooperation, planning and project implementation
- Implement energy independence, greenhouse gas emissions or climate change adaptation project elements
- Reduce flood and storm water impacts on properties and structures downstream in Rohnert Park
- Reduce downstream sediment and siltation impacts on waterways interconnected with Copeland Creek.
- Improve fish habitat and wildlife habitat and passage
- Reduce runoff and improve water quality
- Increase educational and recreational opportunities
- Increase aquifer recharge and decrease reliance on imported water
- Create riparian habitat
- Decrease operational costs associated with in-stream sediment removal and vegetation management
- Improve flood protection
- Reduce pumping costs
- Result in costs savings from reduced purchases of imported water
- Increase numbers of native species resulting from riparian restoration
- Reduce risk to life and property

The impact of not implementing the project would include:

- Continued flooding of Rohnert Park properties and structures with accompanying risks to life and property
- Insufficient suitable habitat for juvenile steelhead
- Reduced habitat enhancement and restoration for riparian and aquatic species
- Reduced water quality improvements resulting from sediment removal
- Reduced groundwater recharge potential
- Energy savings from reduced dependence on potable imported water

One – quarter of the existing and master planned 50,000-person City of Rohnert Park as well as the 10,000 person Sonoma State University would benefit from these Project improvements, including flood protection. Additionally, many rural well owners and agricultural property owners in

unincorporated Sonoma County within the vicinity of the project will benefit from the replenishment of local groundwater supplies.

The regional and local impacts of a 100 year flood have been determined to affect at least one – quarter of the downstream City of Rohnert Park including Sonoma State University, Rancho Cotati High School, businesses, residences, and adjoining City arterial roadways, such as Rohnert Park Expressway and Snyder Lane. Storm water detention basins sited to capture runoff from the Copeland Creek headwaters would reduce the impacts of future 100 year floods upon the regional downstream properties and structures.

Historical groundwater level declines in the region have been a concern to many groundwater users in the area. The storm water detention/groundwater recharge basins would be located over one of the few areas within the southern Santa Rosa Plain groundwater basin ranked as having a high potential for groundwater recharge, making it ideal in its potential to enhance the replenishment of local groundwater supplies.

The Project addresses the following statewide priorities:

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Efficient groundwater basin management

Use and Reuse Water More Efficiently

- Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, and enhance and protect upper watershed forests and meadow systems
- Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- Reduce Energy Consumption: Water system energy efficiency
- Reduce Energy Consumption: Reuse runoff

Expand Environmental Stewardship

- Expand Environmental Stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems.

Practice Integrated Flood Management

- Improved flood protection
- More sustainable flood and water management systems
- Enhanced floodplain ecosystems
- LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface Water and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

The land use codes and general plans of Rohnert Park contain policy goals that encourage and support ongoing commitments to riparian restoration, flood control, and water quality improvements. The proposed project integrates funding from federal, state (pending), and five local sources to achieve multiple benefits and objectives to connect trails, bike paths, storm water detention, and fisheries and habitat enhancement with open space, a regional park, and Copeland Creek.

1. **Is this project integrated into existing local, watershed, basin/ regional plans or reports? Yes or No**

If so, please list plans or reports [format: Document name, Author, Published date]:

Copeland Creek Watershed Assessment, Laurel Marcus & Associates, 2004
Final Water Supply Assessment, Winzler and Kelly, 2005
Stream Maintenance Program, Sonoma County Water Agency, 2009
Russian River Biological Opinion, NOAA, 2008

Resources Management Strategies (for more information see California Water Plan) *Increase Water Supply*

- Conjunctive Management & Groundwater Storage
- Surface Storage - Regional/Local

Improve Flood Management

- Flood Risk Management

Improve Water Quality

- Pollution Prevention
- Urban Runoff Management

Practice Resources Stewardship

- Agricultural Lands Stewardship
- Ecosystem Restoration
- Recharge Areas Protection
- Watershed Management

Climate Change Adaptation and Mitigation

- Energy Efficiency
- Reduction of Greenhouse Gas Emissions
- Reduction of Carbon Footprint
- Reduction in Water Demand

1. **Describe how each selected resource management strategy is met and why they are important to the project (1000 characters):**

System Reoperation, Groundwater/Surface Storage, Flood/Runoff Management & Energy Efficiency, Reduction of Greenhouse Gas Emissions/Carbon Footprint/Water Demand: Storm water detention of up to 200 acre-feet in two to three off-stream basins with 150 acre-feet of annual groundwater recharge potential will enable the Water Agency to manage storage and program releases to accommodate instream flow conditions and groundwater recharge, and manage flood

retention. Enhancing groundwater supply reliability will decrease dependence on imported Russian River water and thereby potentially result in reduced pumping and importation of potable surface water and energy savings and reduced greenhouse gas emissions.

Agricultural Lands Stewardship, Recharge Areas Protection, Watershed Management: The Project will restore riparian habitat along 16,000 linear feet of Copeland Creek, increase permanent preserved open space that encompasses the proposed recharge areas by 75 to 90 acres, reduce sediment discharge into downstream creeks and channels, provide refugia for steelhead, and reduce flood impacts.

2. **Describe the integration of these multiple resource management strategies (1000 characters):**

This project assists in preserving natural systems and lands that support diverse biological resources. The project will protect water quality for salmonids by detaining fine sediment from roads, erosion, and other upland sources that otherwise would be deposited into the streambed. The Project detention basins provide regional flood and sediment control protection, thereby reducing flood impacts on downstream City and County properties and structures. The Project flood and sediment control measures will improve water quality in the creeks, increase groundwater recharge, and reduce potable water importation. Riparian restoration removes non-native invasive species and replaces them with species that stabilize stream banks, provide shade and improve water quality.

3. **Describe how your project addresses climate change adaptation and mitigation: energy efficiency, reduction of greenhouse gas emissions, reduction of carbon, or reduction in water demand (1000 characters):**

Storm water detention of up to 200 acre-feet in two to three off-stream basins located in the alluvial fan east of Petaluma Hill Road may yield 150 acre-feet or more annual groundwater recharge potential, adding to the groundwater supply reliability and reducing dependence in imported water. Without the added groundwater reliability, the City of Rohnert Park is more likely to have to rely on imported Russian River water. If the City if Rohnert Park were to have to import the additional 150 acre-feet of water, the resulting greenhouse gas emissions would be approximately 200 tons CO2 per year. Gravity fed infiltration strategies are the most energy efficient means of recharging groundwater basins.

4. **Describe how your project integrates and benefits local land use planning (500 characters):**

The land use codes and general plans of Rohnert Park contain policy goals that encourage and support ongoing commitments to riparian restoration, flood control, and water quality improvements. The proposed project integrates funding from federal, state (pending), and five local sources to achieve multiple benefits and objectives to connect trails, bike paths, storm water detention, and fisheries and habitat enhancement with open space, a regional park, and Copeland Creek.

5. **Describe how your project integrates and benefits local stormwater / flood management and planning (500 characters):**

The project will accomplish the following:

- Enhance and restore riparian habitat along Copeland Creek
- Provide storm water detention of up to 200 acre-feet in two to three off-stream basins located in the alluvial fan east of Petaluma Hill Road with 150 acre-feet or more annual groundwater recharge potential
- Protect and restore surface water and groundwater quality
- Enable programming releases to accommodate instream flow conditions and groundwater recharge, and manage flood retention.
- Based on an analysis of the cost of conveyance capacity upgrades (e.g. increasing the hydraulic capacity of road crossings, culverts, storm drains, etc.) within the Copeland Creek Watershed, detention basins have been determined to be the most cost effective method of providing 100 year flood protection for Rohnert Park's downstream urban area.

6. Project Benefits:

Increase Water Supply

- Increased water supply or range in water supply (i.e. acre-feet per year)
- Improved water quality
- Increased recreational opportunities
- Decreased reliance on imported water
- Reduced groundwater overdraft
- Creation of wetlands and riparian habitat
- Decreased operational costs
- Other

Water Quality Improvement

- Increased water supply
- Improved aquatic and wetland species habitat and populations
- Creation of wetlands and riparian habitat
- Improved recreation opportunities
- Other

Groundwater Improvements

- Improved flood protection
- Decreased reliance on imported water
- Reduced surface water use, reduced pumping costs
- Decreased or prevention of groundwater overdraft
- Other

Water Conservation and Reuse

- Costs savings from reduced purchases of imported water
- Saving construction of water storage facilities
- Other

Watershed Rehabilitation

- Long-term sediment reduction and temperature improvements
- Reduced surface water nutrient and bacteria concentrations (improved water supply quality)
- Improved fish and wildlife habitat and passage
- Enhanced public safety and recreational opportunities
- Other

Habitat Improvement

- Reduced surface water nutrient and bacteria concentrations (improved water supply quality)
- Enhanced fish habitat
- Increased opportunities for recreational hunting and viewing

- Increased numbers of native species
- Reduced flood risks
- Education opportunities
- Other

Flood Management

- Increased aquifer recharge
- Runoff reduction
- Improved surface water quality
- Natural resources preservation and restoration
- Reduced risk to life and property
- Decreased flood insurance costs
- Other

3. Select the other sensitive habitat areas your project benefits.

- Riparian corridors
- Perennial and intermittent streams
- Habitats supporting rare, endangered, threatened and endemic species (CNPS, State, Federal)

4. <u>Describe how your project benefits salmonids and other endangered / threatened species (1000 characters):</u>

Implementation of creek enhancement and creek habitat restoration will improve the environment for these species.

The project will assist in juvenile steelhead migration by providing off-channel refuge during high-flow events in the mid-reach of Copeland Creek. The project also protects water quality for salmonids by detaining fine sediment from roads, erosion, and other upland sources that otherwise would be deposited onto the streambed, reducing aquatic insect habitat that salmonids rely upon, as well as the algae and aquatic plants which make up the base of the food web for salmonids. Copeland Creek is an important migratory corridor for fish that pass through the engineered Copeland Creek reaches toward upstream spawning sites. The Copeland Creek channel provides an important migratory corridor from the Russian River and Laguna de Santa Rosa, to the upper Copeland Creek headwaters.

5. <u>Impaired waterbodies:</u>

Copeland Creek drains to the Laguna de Santa Rosa, a 303d listed impaired water body.

Additional information and detail regarding the extent of the benefits of the project are included in the Proposition 1E grant application.